



The surgeons' training for Disaster Medical Management – Moldavian experience

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Summary - The surgeon has a central role in provision of medical support in case of Disasters in Moldova. The surgeons are postgraduate trained for fulfilling their duties as leaders of medical teams, field hospitals or triage site managers. The cooperation between civilian healthcare system and military medical service in the process of surgeons' training is significant. The aim of this publication is to present the civil-military cooperation in the training of surgeons and medical teams for Disaster Medical Support.

Materials and Methods: By the means of descriptive method the roles and responsibilities of surgeons in disaster medical management and support in Moldova are described. Comparative method was applied in order to analyse the areas of civil-military cooperation in the surgeons' educational and training process for ensuring required knowledge and skills achievement. **Conclusions:** As a result of performed analyses the civil-military cooperation in the educational and training process of Moldavian surgeons for disaster medical management and support are presented.

Key words: Disaster Medicine; Surgeons' Training; Disaster Medical Management and Support; Moldavian experience.

Introduction:

Moldova is at high risk associated with natural hazards, owing to high levels of exposure and vulnerability, as well as insufficient capacity to manage risks. Moldova is mostly prone to the following hazards: natural hazards (floods being first priority, followed by droughts, and then by landslides, soil erosions, wind storms, hail, earthquakes and climate change); followed by biological hazards (epidemics, epizootics, etc.); then environmental hazards (pollution of air, soil and water resources, deforestation, tailing dam etc.); then by technological hazards (industrial accidents, explosions, fires etc.), and finally by anthropogenic hazards (economic recession, migration, social violence, etc.) Natural hazards caused by hydro meteorological phenomena (hail storms, early frost onset, droughts, and floods) and geophysical hazards have become more frequent and intense in the last few decades. Average annual losses from hydro meteorological hazards comprise around three percent of GDP. They have a severe impact upon the rural population of Moldova, which makes up around 60% of the total and depends largely upon agriculture for their livelihood. Overall annual losses from geophysical hazards account for 0.9% of GDP.

Frequent floods (an average of 1.2 per year, 1992-2005) are result of the heavy rains to which 40% of the settled areas in the country are exposed. 43.7% of settlements in Moldova are threatened by landslides, and they are increasing every year. This threat is mainly linked to subsidence from large construction works and widespread deforestation, rather than heavy rainfall events. Risks associated with geophysical hazards are also significant. Historic records reveal earthquake with a magnitude 7.4 (1940, Chisinau earthquake), in 1977 a magnitude 7.2 earthquake, and the 1986 Vrancea earthquake ($M=7.0$), that caused estimated losses equivalent to billion dollars.

On the other hand there is no common institution responsible for Disaster Risk Reduction (DRR) in Moldova. There is a lack of coordination among different institutions and organizations working in the field of DRR. The importance of having an agreed coordination mechanism for DRR activities and information sharing in the whole country and establishment of National Disaster Observatory (NDO) which can be a joint effort and mechanism for information sharing and management is recognized, and there are governmental steps for their development.



Also is revealed that there is a need of training the rescue teams and the population on DRR/M. The Government of Moldova recognizes the threats to development posed by natural hazards and works often with international organization and conventions, to increasing resilience to natural disasters by integrating DRR into development and building capacities at all level.(1)

The surgeon has a central role in provision of medical support in case of Disasters in Moldova. The surgical aid is required as a life, limb and eyesight saving from the onset of the disaster.

The imperative is to provide the specialized and if possible qualified surgical assistance as soon as possible and to the maximum people in need. (2)

The nature of disasters is creating a significant gap between required and available medical means and capabilities. (2) This leads to the requirement present in or in the vicinity of area of damage surgeons to be ready to perform their duties in different, in most of the events hostile, from the usual hospital environment. (3, 4) Moreover, because of the Disaster Medical Support principles (triage for example) surgeons are more often than others medical specialists assigned as a disaster medical teams' leaders. (4, 5) Therefore, the requirement of disaster medical support orientated education and training for the surgical specialties is recognized as a priority in Moldova. Due to the similarities between Disaster and Military Medicine the civil-military cooperation in the educational and training processes is widely advocated and utilized. (6)

The aim of this publication is to present the civil-military cooperation in the training of surgeons and medical teams for Disaster Medical Support.

Materials and Methods

By the means of descriptive method the roles and responsibilities of surgeons in disaster medical management and support in Moldova are described. Comparative method was applied in order to analyse the areas of civil-military cooperation in the surgeons' educational and training process for ensuring required knowledge and skills achievement.

Results and Discussions

In Moldova the specialization in surgery is following the general medical graduation. The medical students are educated for six years in the Medical University to obtain the Master degree in human medicine. After physicians are graduated they could continue their education in surgery residency for five years in acknowledge hospital or clinic. After completing their residency rights as surgeons are acknowledge to the physician. (7) In regards to the described educational process the Disaster Medical Support training and education of the surgeons in Moldova could be easily grouped at three levels:

- students;
- residents;
- specialists.

Within all these three levels the Moldovan physicians are receiving theoretical knowledge and are trained for acquiring practical skills in disaster medical management.

While studying in the Medical university physicians to be are prepared for fulfilling surgical activities during disaster medical relief operations in the courses of:

- disaster medicine;
- general surgery;
- thoracic surgery;
- anaesthesiology and reanimation;
- orthopedics and traumatology;
- neurosurgery;
- emergency medicine.

During these courses along with the theory students are trained to:

- plan for disaster medical support;
- receive, analyze and disseminate medical information;
- life saving surgical techniques – e.g. bleeding control, air ways liberations (tracheotomy, etc);
- work with triage labels;
- resuscitation;
- dealing with open and closed traumas, pneumo and haemothorax.

The postgraduate residency in surgery provides physicians with knowledge in depth about:

- treatment of emergency and life threatening conditions;
- life, limb, eyesight saving techniques;
- primary and definitive surgical care;
- triage;
- field surgery.

In a Disaster Management orientated courses surgeons and residents in surgery are taught on:

- triage organization and execution;
- temporary medical station management;
- disaster medical support management;
- field war surgery;
- medical evacuation;
- organization of disaster management. (8)

Within presented levels military medical specialist are invited to present and train their civilian colleagues during the specialized courses on triage, field/war surgery, life/limb/eyesight saving techniques. Great majority of these courses are entirely developed, organized and executed by military medical officers.

As it was noted above, some of the main disaster medical support principles are the triage, the life/limb/eyesight saving and properly executed medical evacuation.

From the performed analyses on the organization of the surgical education in Moldova it is clearly highlighted the significant role of the military medicine in the surgeons education and training. What is more military medical specialist are part of the academic teams, delivering lectures in the university on specific topics of disaster medicine, general surgery and emergency medicine, as well as in all the courses during the residency in surgery.

Great deal of the practical training, for disaster medicine management – triage, damage control surgery, medical evacuation, organization of the medical areas etc, are developed and execute in close cooperation with military medical experts, utilizing their experience and knowledge. (9)

As a result of performed analyses and the outcome of the disaster medical support performed during last decades, could be stated that the surgeons in Moldova are well educated and trained for fulfilling their duties as leaders of medical teams, field hospitals or triage site managers during disaster medical relief operations.

Conclusion

Performed analyses of the university education, residency in surgery and specialists' theoretical and practical training in Moldova, emphasize the significant role of the civil-military cooperation in the educational and training process of Moldavian surgeons for disaster medical management and support.

Author also is highlighting the high value of the international training and specialists' exchange in order to better prepare the surgeons for disaster medical support and management.



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